

ATTACHMENT 1

NORTHERN STATES POWER COMPANY
MONTICELLO NUCLEAR GENERATING PLANT
License No. DPR-22

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT
Period : Jan - Jun 1994

Supplemental Information

1. Regulatory Limits - Quarterly levels requiring reporting to
Nuclear Regulatory Commission

A. Noble Gases :

5 mrad/quarter gamma radiation
10 mrad/quarter beta radiation

B. Long Lived Iodines, Particulates, and Tritium :

7.5 mrem/quarter dose to any organ

C. Liquid Effluents :

1.5 mrem/quarter dose to the total body
5.0 mrem/quarter dose to any organ

2. Maximum Permissible Concentrations

A. Noble Gases :

10 CFR Part 20, Appendix B, Table II, Column 1

B. Long Lived Iodines, Particulates, and Tritium :

10 CFR Part 20, Appendix B, Table II, Column 1

C. Liquid Effluents :

10 CFR Part 20, Appendix B, Table II, Column 2
2.0 E-4 uci/ml for dissolved and entrained gases

3. Average Energy

(Not Applicable)

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Supplemental Information (continued)

4. Measurements and Approximations of Total Radioactivity

A. Noble Gases :

Continuous gross activity monitors in Reactor Building Vent and Plant Stack exhaust streams. Weekly isotopic analysis of exhaust streams.

B. Iodines in Gaseous Effluent :

Continuous monitoring with charcoal cartridges in Reactor Building Vent and Plant Stack exhaust streams with weekly analysis.

C. Particulates in Gaseous Effluent :

Continuous monitoring with particulate filters in Reactor Building Vent and Plant Stack exhaust streams with weekly analysis.

D. Tritium in Gaseous Effluent :

Continuous monitoring with silica gel cartridges in Reactor Building Vent and Plant Stack exhaust streams with weekly analysis.

E. Liquid Effluents :

Tank sample analyzed prior to each planned release and continuous monitoring of gross activity during planned release.

5. Batch Releases

A. Liquid :

1. Number of Batch Releases	0	
2. Total Time Period for Batch Releases	0.0	min
3. Maximum Time Period for a Batch Release	0.0	min
4. Average Time Period for a Batch Release	0.0	min
5. Minimum Time Period for a Batch Release	0.0	min
6. Average River Flow During Release	0.0	cf/sec

B. Gaseous :

1. Number of Batch Releases	4	
2. Total Time Period for Batch Releases	3533.0	min
3. Maximum Time Period for a Batch Release	1462.0	min
4. Average Time Period for a Batch Release	883.3	min
5. Minimum Time Period for a Batch Release	320.0	min

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Supplemental Information (continued)

6. Abnormal Releases

A. Liquid :

1. Number of Releases	0	
2. Total Activity Released	0.0	Ci

B. Gaseous :

1. Number of Releases	1	
2. Total Activity Released	0.3	Ci

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Table 1A Gaseous Effluents - Summation of all Releases

	Units	1st Qtr	2nd Qtr	Est. Total Error, %
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A. Fission & Activation gases

1. Total Release	Ci	1.65E+02	1.75E+02	2.00E+01
2. Average Release Rate	uci/sec	2.12E+01	2.22E+01	
3. Percent Tech Spec Qtrly Reporting Level				
Gamma Radiation	%	9.36E-02	1.69E-01	
Beta Radiation	%	3.66E-02	5.83E-02	

B. Iodines

1. Total I-131 Release	Ci	2.04E-03	3.13E-03	1.00E+01
2. Average I-131 Release Rate	uci/sec	2.62E-04	3.98E-04	

C. Particulates

1. Total Particulates	Ci	6.89E-04	6.61E-04	3.00E+01
2. Average Release Rate	uci/sec	8.86E-05	8.41E-05	
3. Gross Alpha Radioactivity	Ci	2.71E-06	8.47E-06	

D. Tritium

1. Total Release	Ci	1.25E+01	2.54E+01	1.00E+01
2. Average Release Rate	uci/sec	1.61E+00	3.23E+00	

E. Percent Qtrly Tech Spec Reporting Levels

1. Iodines, Particulates, and Tritium	%	3.83E-01	4.41E-01	
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Table 1B Gaseous Effluents - Elevated Releases

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
1. Fission Gases					
KR-85M	Ci	4.95E-01	1.47E+00	0.00E+00	0.00E+00
KR-87	Ci	1.64E+00	3.17E+00	0.00E+00	0.00E+00
KR-88	Ci	1.46E+00	3.93E+00	0.00E+00	0.00E+00
KR-89	Ci	2.47E+00	0.00E+00	0.00E+00	0.00E+00
XE-133	Ci	3.38E+01	3.64E+01	0.00E+00	1.83E-02
XE-133M	Ci	5.53E-01	4.35E-01	0.00E+00	0.00E+00
XE-135	Ci	9.40E+00	1.59E+01	0.00E+00	4.87E-03
XE-135M	Ci	1.29E+01	9.24E+00	0.00E+00	0.00E+00
XE-137	Ci	6.09E+01	5.62E+01	0.00E+00	0.00E+00
XE-138	Ci	3.32E+01	2.55E+01	0.00E+00	0.00E+00
AR-41	Ci	2.74E-02	1.76E-01	0.00E+00	1.08E-03
Total for Period	Ci	1.57E+02	1.52E+02	0.00E+00	2.43E-02
2. Iodines					
I-131	Ci	2.94E-04	1.37E-03	0.00E+00	3.56E-08
I-133	Ci	1.73E-03	8.12E-03	0.00E+00	0.00E+00
I-135	Ci	2.46E-03	4.72E-03	0.00E+00	0.00E+00
Total for Period	Ci	4.49E-03	1.42E-02	0.00E+00	3.56E-08
3. Particulates					
MN-54	Ci	0.00E+00	5.51E-07	0.00E+00	0.00E+00
CO-58	Ci	0.00E+00	9.62E-08	0.00E+00	0.00E+00
CO-60	Ci	2.90E-06	6.33E-06	0.00E+00	0.00E+00
ZN-65	Ci	5.29E-07	7.78E-06	0.00E+00	0.00E+00
CS-137	Ci	2.06E-06	3.28E-06	0.00E+00	0.00E+00
BA-140	Ci	2.57E-04	2.09E-04	0.00E+00	0.00E+00
SR-89	Ci	3.69E-05	9.46E-05	0.00E+00	0.00E+00
SR-90	Ci	2.24E-07	4.22E-07	0.00E+00	0.00E+00
Total for Period	Ci	2.99E-04	3.22E-04	0.00E+00	0.00E+00

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Table 1C Gaseous Effluents - Building Vent Releases

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr
1. Fission Gases					
XE-133	Ci	0.00E+00	0.00E+00	0.00E+00	3.96E-02
XE-135	Ci	7.07E+00	1.43E+01	0.00E+00	5.67E-02
XE-135M	Ci	9.50E-01	7.80E+00	0.00E+00	7.69E-03
AR-41	Ci	0.00E+00	0.00E+00	0.00E+00	2.13E-02
Total for Period	Ci	8.02E+00	2.21E+01	0.00E+00	1.25E-01
2. Iodines					
I-131	Ci	1.74E-03	1.75E-03	0.00E+00	8.82E-07
I-133	Ci	1.57E-02	1.40E-02	0.00E+00	0.00E+00
I-135	Ci	2.71E-02	2.33E-02	0.00E+00	0.00E+00
Total for Period	Ci	4.45E-02	3.90E-02	0.00E+00	8.82E-07
3. Particulates					
MN-54	Ci	6.20E-06	3.52E-06	0.00E+00	0.00E+00
CO-60	Ci	3.89E-04	1.28E-04	0.00E+00	9.58E-06
ZN-65	Ci	1.12E-04	1.04E-04	0.00E+00	0.00E+00
CS-137	Ci	2.83E-05	2.84E-05	0.00E+00	0.00E+00
BA-140	Ci	1.12E-04	5.07E-05	0.00E+00	0.00E+00
SR-89	Ci	1.97E-06	1.43E-05	0.00E+00	0.00E+00
Total for Period	Ci	3.90E-04	3.29E-04	0.00E+00	9.58E-06

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Table 2A Liquid Effluents - Summation of all Releases

	Units	1st Qtr	2nd Qtr	Est. Total Error, %
A. Fission & Activation products				
1. Total Release (not including tritium, gases, alpha)	Ci	0.00E+00	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
B. Tritium				
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
C. Dissolved and Entrained Gases				
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00
2. Avg Diluted Concentration	uci/ml	0.00E+00	0.00E+00	
D. Percent Qtrly Tech Spec Reporting Level				
1. Whole Body Dose	%	0.00E+00	0.00E+00	
2. Organ Dose	%	0.00E+00	0.00E+00	
E. Gross Alpha Radioactivity				
1. Total Release	Ci	0.00E+00	0.00E+00	0.00E+00
F. Volume of Waste Released				
	Liters	0.00E+00	0.00E+00	0.00E+00
F. Volume of Dilution Water Used				
	Liters	0.00E+00	0.00E+00	0.00E+00

Table 2B Liquid Effluents

Nuclides Released	Unit	Continuous Mode		Batch Mode	
		1st Qtr	2nd Qtr	1st Qtr	2nd Qtr

None Released This Period

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Table 3 Solid Waste and Irradiated Fuel Shipments
A. Solid Waste Shipped Offsite for Burial or Disposal (not irradiated fuel)

1. Type of Waste	Units	6-month Period	Est. Total Error, %
a. Spent resins, filter sludges, evaporator bottoms, etc.	Cu. Meter Ci	1.85E+01 1.40E+03	3.70E+01
b. Dry compressible waste, contaminated equipment, etc.	Cu. Meter Ci	1.05E+01 4.21E-01	3.50E+01
c. Irradiated components, control rods, etc.	Cu. Meter Ci	0.00E+00 0.00E+00	0.00E+00
d. Other (describe)	Cu. Meter Ci	0.00E+00 0.00E+00	0.00E+00

2. Estimate of major nuclide composition (by type of waste)				
Nuclide	Type A percent	Type B percent	Type C percent	Type D percent
H-3	1.48E-02	2.48E-01		
C-14	1.10E-02	4.59E-02		
Cr-51	1.04E+00			
Mn-54	3.12E+00	5.29E+00		
Fe-55	1.32E+00	4.83E+01		
Co-57	1.30E-02			
Co-58	3.84E-01	7.07E-01		
Fe-59	1.89E-01	1.85E+00		
Ni-59	7.96E-03			
Co-60	1.20E+01	2.04E+01		
Ni-63	1.47E-02	3.96E+00		
Zn-65	7.69E+01	1.79E+01		
Sr-89	4.85E-02	3.58E-02		
Sr-90	4.92E-03	2.97E-02		
Nb-94	1.40E-04			
Nb-95	1.89E-01			
Zr-95	2.98E-01			
Tc-99	9.38E-05	2.41E-05		
Ru-103	1.55E-01			
Ru-106	1.37E+00			
Cd-109	3.63E-01			
Ag-110m	6.87E-02			
Sb-124	1.89E-02			
Sb-125	8.11E-02			
I-129	1.57E-04	1.09E-04		
I-131	3.45E-01			
Cs-134	4.67E-01	7.44E-02		
Cs-137	8.16E-01	4.94E-01		
Ba-140	3.86E-01			
La-140	3.86E-01			
Ce-141	8.71E-03			
Ce-144	6.87E-03	6.64E-02		
Eu-154	1.71E-04			
Eu-155	2.62E-04			
Np-237	6.61E-06			
Pu-238	2.23E-04	2.43E-01		
Pu-239	8.67E-05	1.20E-01		
Am-241	2.70E-04	2.88E-02		
Pu-241	1.91E-02	6.49E-02		
Cm-242	1.30E-03	4.39E-02		
Pu-242	4.13E-05	1.93E-01		
Cm-243	2.29E-04	8.69E-03		

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Table 3 Solid Waste and Irradiated Fuel Shipments

3. Solid waste disposal

Number of Shipments	Mode of Transportation	Destination
6	Truck	Chem-Nuc Inc., Barnwell, SC.

B. Irradiated Fuel Shipments

1. Disposition

Number of Shipments	Mode of Transportation	Destination
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None This Period

C. Shipping Container and Solidification Method

No.	Volume M3	Activity Ci	Type of Waste	Container Code	Solidification Code
94-13	3.41E+00	8.03E+02	A	B	D
94-15	3.41E+00	4.91E+02	A	B	D
94-17	5.83E+00	6.17E+01	A	A	D
94-18	5.83E+00	4.41E+01	A	A	D
94-10	9.10E+00	3.91E-01	B	L	N
93-79	1.43E+00	2.99E-02	B	L	N

Container Codes :

L - LSA
A - Type A
B - Type B
Q - Large Quantity

Solidification Codes :

C - Cement
U - Urea Formaldehyde
D - Dewatering
N - Not Applicable